Class V

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00124	Ex. 6 Personal Privacy (PP)	Individual	Second: PT will tell you that there is no communication between aquifers because of confining layers. However, in 3.4.1.4 it states that the Madison aquifer is 200 feet thick in the southern Hills up to 1000 feet regionally and could be connected to or communicate with the Minnelusa and the Deadwood aquifers which are the chosen repositories for the contaminated waste water, which will be injected under pressure. This communication could prove to be unsafe for obvious reasons. Additionally, in 3.4.1.7, P/T states that "no evidence of karsting has been observed". (erosion due to dissolution producing fissures and sinkholes) This is a below ground phenomenon and simply because something has not been observed at this time does not mean it will not occur later or that it is not there now. As the cave system in the Hills is known to be everywhere, it is only logical that there are fissures everywhere which will allow for "communication" between aquifers as stated above.
00134	Ex. 6 Personal Privacy (PP)	Individual	At the beginning of the first hearing in Rapid City, I chatted with Mr. Minter about the proposed mine. While he was explaining the project he said since the Minnelusa aquifer is not used for drinking water, there are no concerns about waste injection into the Minnelusa. Your presentation gave me the impression that the EPAthinks that the Minnelusa aquifer is not used for drinking water. As I mentioned in my spoken testimony in Rapid City, the Minnelusa aquifer is a drinking water source for many people according to our state Department of Environment and Natural Resources. I recall hearing one member of the public standing at the podium and saying that said her grandson is drinking Minnelusa water. It is appalling to realize that EPAstaff members are unaware of the indisputable fact that the Minnelusa aquifer is indeed a drinking water source for many South Dakotans. This part of South Dakota is particularly dry. How dry? Cacti, sage and yucca thrive in our sunny, dry climate. We cannot afford to risk contamination of the Minnelusa aquifer. Please do not issue any further permits to Powertech/ Azarga for any portion of their proposed project, including permission for other companies to inject their waste into Powertech/Azarga's proposed injection wells.
00160	Ex. 6 Personal Privacy (PP)	Individual	There are issues that arise when evaluating the safety and potential consequences of tampering with uranium, especially within/close to these aquifers. One major concern is that these deep injection wells are supposed to place this wastewater into the Minnelusa Formation where it will hopefully continue to remain and prevent any harm, but the threat is still there (EPAa, 2016). The water isn't guaranteed to stay within the Minnelusa Formation as the USGS has identified

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			that, "Fracturing from folding and brecciation near the outcrop may have increased the permeability of the lower part of the Minnelusa a considerable, but unknown, amount" (Kyllonen, D. P., & Peter, K. D., 1987). This is obviously concerning to know that this wastewater may not remain within the Minnelusa Formation and permeate through, especially considering how many other aquifers are in the surrounding areas. It even states on EPA's UIC website that, "This disposal can pose a threat to ground water quality if not managed properly," and "The different types of Class V wells pose various threats" (EPAa, 2016). While precautionary measures can be taken, there is absolutely no guarantee that Powertech will be able to properly manage and avoid potential accidents/threats from occurring.
00166	Ex. 6 Personal Privacy (PP)	Individual	Intro: My name is Ex. 6 Personal Privacy (PP) 17 year resident, raising kids in the black hills. I own property along the Cheyenne River, I have animals that drink from it, I have an Inyan Kara domestic well that supplies household water and drinking water for livestock. I haul my family's drinking water from a minnelusa well. (see attached well log data from Ferguson well adjacent to Belitz 320 ft well. Belitz well log is missing) (note flowing cave in Ferguson well). Yes, I understand the interest a mining company would have in ISL at the Dewey / Burdock location . I do, however, feel that my water and the water of my community could be irreversibly harmed. Besides inadequate standards for settling pond waste that could potentially contaminate the river and the much utilized Angostura Reservoir, today we are talking about Aquifers. The Inyan Kara and Minnelusa. UIC (Underground Injection Control) Class III Area Permit for Inyan Kara Group Aquifers. These proposed mining activities pose a risk to my Inyan Kara water by undetected or late detected excursions as I am down gradient from the mining activity. UIC Class V area Permit for deep injection wells that would be used to dispose of in situ mining waste fluids into the Minnelusa Formation. The Minnelusa aquifer is a high quality and well utilized aquifer in the southern black hills. In addition to the domestic Minnelusa well that we haul drinking water from, this aquifer sits approximately 1000 ft below my property making it a potential drinking water source for my family and livestock for generations to come. According to "Atlas of Water Resources of the Black Hills", the Minnelusa Aquifer flows from the proposed ISL site to my property. The contaminates injected are likely to pollute this potential drinking water source sometime in the future. When I spoke with 4 Hydrologists at the USGS on March 29 th 2017, I learned the following. Yes, the flow model (Fig. 114, pg.103 Atlas of Water Resources of the Black Hills) does indicate the

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			Minnelusa flowing from Dewey / Burdock to the south east. However, you can not just look at this model. The water in these aquifers, can be really hard to track their flow. In cave environments such as the Minnelusa , underground water almost flows like a river. There are local and regional impacts on the flow systems that are not indicated on Fig. 114. According to a National Water Data Base, there are a minimum of 125 wells drilled into the Minnelusa Aquifer in Fall River County. I believe there are more. My Families Well was drilled approximately 20 years ago and there is no record of it in the current State DENR Well log data site. Speaking with a DENR employee May 9 th ,2017, I was told that many well logs were not submitted especially those during or before the 1980's. We know that the Minnelusa and the Madison (a highly utilized and extremely important aquifer) mix. The USGS Atlas of Water Resources of the Black Hills, Pg 109 Table 13 indicates Cascade Springs is mostly Madison with dissolved Minnelusa minerals. Cascade Springs is also a utilized drinking water source, Cascade falls is a highly visited swimming area attraction, and the 1880 irrigation system from this source provides water for over 1000 acres of hay, fruit and vegetable production and livestock watering ponds for area land owners including my own pond, hay fields, and apple orchard. The Minnelusa Formation is overlain by the Opeche Shale, which separates the Minnelusa aquifer from the Minnekahta aquifer. The Minnelusa aquifer often is hydraulically separated from the underlying Madison aquifer by shales in the lower portion of the Minnelusa Formation. However, in many areas the Minnelusa aquifer is in hydraulic connection with the Madison aquifer. (https://pubs.usgs.gov/ha/ha745c/ha745cIntro.html Potentiometric Surface of the Minnelusa Aquifer in the Black Hills Area, South Dakota By Michael L. Strobel and Joel M. Galloway, U.S. Geological Survey; and Ghaith R. Hamade and Gregory J. Jarrell, South Dakota School of Mines and Technology U.S. GEOLOGICAL SURVEY Hydrologic Investigations Atlas HA-745-C Prepared in cooperation with the South Dakota Department of Environment and Natural Resources and the West Dakota Water Development District) Information on Deep Well injection in North Dakota State geologist Ed Murphy says injection wells are required to be drilled into the Dakota Group zone, a layer about 5,000 feet down where the Inyan Kara sandstone formation provides a porous container for the liquid. (LAUREN DONOVAN Bismarck Tribune Mar 31, 2016)

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			Other requirements for the permitting process: • SWD's over shallow aquifers require a geotechnical analysis by a qualified, independent contractor before a proposed location will be considered. This is to determine the suitability of the shallow subsurface geology to protect the shallow aquifer. • Injection must be into a formation with an upper and lower confining zone to prevent migration of fluids into other formations or fresh water zones. In North Dakota, the disposal zone is typically one half mile to one mile below the surface, into the Dakota Group. (https://www.dmr.nd.gov/oilgas/undergroundfaq.asp#mr10) Because of this scientific data, I believe the EPA should not even consider permitting a UIC Class V area Permit for deep injection wells that would be used to dispose of in situ mining waste fluids into the Minnelusa Formation. The Minnelusa is too shallow, it is unconfined, it is known to mix with a very important aquifer, and is itself is an important and currently used aquifer. Thank you for protecting our water,
00423	Ex. 6 Personal Privacy (PP)	Individual	Deep injection wells have the potential to leak. ProPublica completed a review of more than 220,000 well inspections from October 2007 to October 2010, finding that structural failures were routine. More than 17,000 integrity violations were handed out and more than 7,000 of these wells were found to be leaking (https://www.propublica.org/article/injection-wells-the-poison-beneath-us).
00470	Ex. 6 Personal Privacy (PP)	Individual	What is half-life of constituents going into the deep injection wells?
00519 00527			This is tremendously important. The draft permits include some very critical actions, such as testing the Minnelusa Aquifer to determine its water quality before deciding whether the company can proceed with deep disposal wells. This is a high-stakes test that would impact the future of the southwestern Black Hills. First, the water quality test should have been done under EPA's direct supervision before a draft permit was issued. If the Minnelusa's water turned out to be appropriate for drinking water, the time and expense of creating the application and the Class V draft permit would have been avoided – as would have the stress on people in the area who use and rely on the aquifer.
00451	Ex. 6 Personal Privacy (PP)	Individual	The deep disposal of waste into lower aquifers, is just an easy means for disposal of this toxic waste. Out of sight, out of mind, and too deep to be monitored. Will it flow into other aquifers? What happens after they are finished and long gone? Who monitors it then?

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00466	Ex. 6 Personal Privacy (PP)	Individual	I've heard that the Minnelusa aquifer contains 125 drinking water wells -please verify with the South Dakota Department of Environment and Natural Resources.
00513	[No name provided]	Individual	Class V wells are for non hazardous waste disposal What non hazardous material will be injected in these class V wells?
00527	Ex. 6 Personal Privacy (PP)	Clean Water Alliance	Another process issue is that EPA has gone through all sorts of contortions in its Fact Sheet on the Class V application in an attempt to define what is clearly a Class I well as a Class V well. The disposal would clearly take place above a USDW, the Madison formation, which is a large aquifer of broad use in the Black Hills. It is used by, among others, Edgemont and Rapid City. The EPA justifies its labeling of Class I wells as Class V wells by treating them as Class I wells for construction and monitoring purposes and by requiring the company to treat the injectate until it is "at or below radioactive waste standards" (Class V Draft Area Permit Fact Sheet, p. 8). The fear of many people in the area, as expressed in the public hearings, is that this is not sufficient, and our water would become irretrievably contaminated. [...] Next, deep disposal well integrity should be tested at least once per year, not as infrequently as every 5 years, as EPA suggests in the Class V Fact Sheet (p. 56). And injectate should be monitored and analyzed regularly, as the characteristics of wellfields will differ, and as the functioning of the RO system may also vary in effectiveness. Records should be maintained until at least five years after the end of the project, in case problems develop over time, not for as little as three years, as the Fact Sheet suggests (p. 59). Similarly, EPA calculations indicate that "the pressure within the Minnelusa injection zone resulting from injection activity is **not** [bold in original] below the critical pressure needed to move fluids out of the Minnelusa injection zone into the Madison Formation" (p. 28). The EPA correctly requires the company to recalculate in light of this fact, but must also hold firm if the resulting injection rates are even near the critical pressure, with the potential result that the permit would not be granted. Again, it is critical to protect the Madison aquifer, and the nature of the upper portion of that aquifer is particularly concerning due to the presence of rapid water movement.
00528	Ex. 6 Personal Privacy (PP)	Aligning for Responsible Mining	**3. COMMENTS SPECIFICALLY RELATED TO DRAFT CLASS V UIC AREA PERMIT** A. Powertech is required to demonstrate that the injectate will be contained within the injection interval by confining zones above and below. The upper confining zone is identified as the

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			Opeche shale which overlies the Minnelusa Fm. The lower confining zone is identified as the lower part of the Minnelusa Fm. **Calculations performed by EPA staff indicate that the injection induced pressure within the injection zone will exceed the critical pressure needed to move waste fluids into the underlying Madison USDW for a distance of 3.5 miles from DW1 and 2.5 miles from DW-3. This means that there is a significant potential for waste fluid injectate to migrate downward through natural geologic pathways (faults, fractures, high permeability zones) or anthropogenic features (abandoned oil/gas wells). There is significant disagreement on this between EPA and Powertech based on very different calculations of the critical pressure.** **There is also significant uncertainty regarding the porosity of the injection zone, the elevation of the potentiometric surface of the Madison Fm. and the effect of pumping by two proposed Madison water supply wells. These data are necessary for calculating the distance over which the injection-induced pressure exceeds the critical pressure needed to move waste fluids downward to the Madison. To be conservative the Area of Review should extend at least 3.5 miles from each proposed class V well.** Currently the lack of hydrologic data for the Minnelusa Fm. injection zone and, especially the Madison Fm. results in uncertainty that is too great and does not support a decision that there is an adequate lower confining zone. It may also mean that more than 4 injection wells will be required to limit injection rates and pressures. B. Lack of Site Specific Data. Calculations were made to estimate the radius of fluid displacement, which is an indication of how far from the injection well the waste fluid will move. The calculations were based on a simple model which consider only porosity and thickness of the injection zone. **Powertech used a porosity value of 21% and EPA used a porosity value of 10%. Neither are based on site specific data**. These analyses did not consider transport of the waste fluid plume by ground water flow. The waste fluid plume will not be static –but will migrate in a downgradient direction once it is emplaced in the injection zone. C. EPA is relying on data that will be obtained from drilling and testing the two proposed Madison water supply wells (***which have not been approved by SD DENR***) and drilling and testing the Class V wells. EPA is also relying on data on formations underlying the Minnelusa from well DW-1 ***if*** it is drilled to the base of the Deadwood Fm. as Powertech indicated in the Class V permit application ***(unclear if Powertech still plans to do this).*** **This results in a difficult problem if Powertech cannot obtain any data hydrologic/ geologic on the Madison USDW or if data obtained indicate that the proposed injection zone does not**

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			meet the criteria specified in UIC regs. It would be very difficult for EPA to deny a permit once the wells are drilled and completed. This means that more data is needed before a permit is issued. [...] G. **Class V fact sheet. What about the arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver?** The EPA Document states: 7.8.1 Hazardous Waste Permit Limits The Area Permit requires the injectate to be below the concentrations for the hazardous waste toxicity characteristic limits found at 40 CFR § 261.24 Table 1. The Table 1 constituents that could be expected in the injectate are the following metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver. The Area Permit requires that the injectate samples be analyzed quarterly for these metals. Arsenic and selenium are present in the uranium ore deposit mineralogy. The hazardous waste permit limits the injectate must meet are listed in Table 19. Permit SD52173-00000 51 Dewey-Burdock Class V Draft Area Permit Fact Sheet USNRC, NUREG-1910, Vol. 1, GEIS, Section 2.7.2 describes typical liquid waste from ISR facilities: Liquid wastes from ISL facilities are generated during all phases of uranium recovery; construction, operations, aquifer restoration, and decommissioning. Liquid wastes may contain elevated concentrations of radioactive and chemical constituents. Table 2.7-3 shows estimated flow rates and constituents in liquid waste steams for the Highland ISL facility. Liquid waste streams are predominantly production bleed (1 to 3 percent of the process flow rate) and aquifer restoration water. Additional liquid waste streams are generated from well development, flushing of depleted eluant (the fluid that removes uranium minerals from the resin) to limit impurities, resin transfer wash, filter washing, uranium precipitation process wastes (brine), and plant wash down water. Table 19. Hazardous Waste Concentration Limits for Class V Deep Disposal Wells Constituent Total Metals Concentration Limit (mg/L) Arsenic 5.0 Barium 100.0 Cadmium 1.0 Chromium 5.0

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			Lead 5.0 Mercury 0.2 Selenium 1.0 Silver 5.0 7.8.2 Radioactive Waste Permit Limits The Area Permit requires that the injectate be treated to decrease radionuclide activities to levels below the established limits for discharge of radionuclides to the environment, which are listed in 10 CFR Part 20, Appendix B, Table 2, Column 2. These limits are presented in Table 20. Waste streams containing radionuclides below these regulatory limits are not classified as radioactive waste per UIC regulations. The radioactive constituent limits included in Table 20 are the limits set in Table 16 of the Area Permit that injectate will have to meet. Liquid wastes will be treated to achieve uranium effluent limits in the ion-exchange columns. It is not anticipated that thorium-230 and lead-210 will be present at concentrations above the limits; however, if concentrations are above the limits, the effluent will be treated as necessary to satisfy the Table 16 limits. Radium-226 will be treated in radium settling ponds by adding barium, which will cause the radium to precipitate out of solution. Table 20. Radioactive Effluent Limits for Class V Deep Disposal Wells. Radionuclide Effluent Limits 10 CFR 20 App B, Table 2, Column 2 µCi/ml Permit Limit pCi/l Lead-210 1.00x10-8 10 Polonium-210 4.00x10-8 40 Radium-226 6.00x10-8 60 Uranium (Natural) 3.00x10-7 300 Thorium-230 1.00x10-7 100 EPA and Powertech documents continues to rely on Powertech's intent to dispose of its liquid chemical waste via a Class V underground injection control permit. However, the disposal of waste, and particularly radioactive waste, below the lower-most aquifer that serves as an Underground Source of Drinking Water (USDW), as proposed here, is not a Class V activity. Rather, such disposal is a Class I underground disposal well. Compare, 40 C.F.R. § 144.80(a) (Class I – deep injection) with 40 C.F.R. § 144.80(e)(Class V – shallow injection).

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			Further demonstrating this fact is the SD DENR which classifies any well that proposes to be used for injection of either hazardous or non-hazardous liquid waste, or municipal waste, as a Class I UIC well. Importantly, the State of South D 9 akota specifically and unambiguously precludes operation or construction of any Class I UIC wells within its borders. Indeed, the applicable regulatory provision is even broader, stating in its entirety: "Class I and IV disposal wells prohibited. No injection through a well which can be defined as Class I or IV is allowed." S.D. Admin. R. § 74:55:02:02 (emphasis added). This is a significant issue, which the EPA analysis must address. On December 8, 2016, Powertech expressed concern that removing the Deadwood Formation as an option for injection of treated ISR waste fluids would greatly diminish the capacity for waste fluid disposal. A few days later, Powertech withdrew its request to inject into the Deadwood Formation. **Therefore, based on Powertech's own statements, its proposed capacity for waste fluid disposal is greatly diminished which increases the likelihood of land application. However, the Application does not address the cumulative impacts of land application of toxic waste fluid including selenium which is highly toxic to people and wildlife. These impacts require a full and complete analysis.**
00546	Ex. 6 Personal Privacy (PP)	Oglala Sioux Tribe	Lastly on this point, the EPA and Powertech documents continues to rely on Powertech's intent to dispose of its liquid chemical waste via a Class V underground injection control permit. However, the disposal of waste, and particularly radioactive waste, below the lower-most aquifer that serves as an Underground Source of Drinking Water (USDW), as proposed here, is not a Class V activity. Rather, such disposal is a Class I underground disposal well. Compare, 40 C.F.R. § 144.80(a) (Class I – deep injection) with 40 C.F.R. § 144.80(e) (Class V – shallow injection). Further demonstrating this fact is the State of South Dakota's Department of Environment and Natural Resources, which classifies any well that proposes to be used for injection of either hazardous or nonhazardous liquid waste, or municipal waste, as a Class I UIC well. See, Chart located on the State of South Dakota's website: http://denr.sd.gov/des/gw/UIC/UIC_Chart.aspx. Importantly, the State of South Dakota specifically and unambiguously precludes operation or construction of any Class I UIC wells within its borders. Indeed, the applicable regulatory provision is even broader, stating in its entirety: "Class I and IV disposal wells prohibited. No injection through a well **which can be defined as** Class I or IV is allowed." S.D. Admin. R. § 74:55:02:02 (emphasis added). This is a significant issue, which the EPA analysis must address.

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00546	Ex. 6 Personal Privacy (PP)	Oglala Sioux Tribe	The potential pathway for migration of injectate into the Madison aquifer (per EPA) and then into surface water (per USGS) is improperly discounted by EPA. The agency has failed to given proper consideration of the potential existence of pathways resulting from unidentified faults or future seismic activity. The EPA finding that "the nearest potential pathway for fluid movement out of the injection zone in the Dewey area is the Dewey fault," is not supported by adequate data, in light of the regional seismology. (EPA, *Dewey Burdock Class V Draft Area Permit Fact Sheet,* p. 26). [...] The directional flow of the groundwater confirms our concern with the migration of pollutants. Horizontal flow has been confirmed for the Inyan Kara formation, and is possible for the Minnelusa aquifer. The recharge area from outcroppings flows toward the Cheyenne watershed. There is an interconnection between surface and groundwater in this area, especially at artesian springs.
00553	Ex. 6 Personal Privacy (PP)	South Dakota DENR	Comments on the Draft Class V Area Permit 3. Page 4, Section A.1.d - DENR recommends EPA evaluate the total dissolved solids (TDS) concentration on a well-by-well basis due to the variability of TDS concentrations in the area and to be consistent with the existing aquifer exemption process for the Class II disposal wells in the vicinity of the proposed project. 4. Page 27, Section D - DENR recommends EPA have an inspector on-site to witness the initial and ongoing mechanical integrity testing of the Class V Area Permit wells. 5. Page 27, Section E - DENR concurs with the permit limitation described in Section E - Class V disposal should only be authorized in non-USDWs (Underground Source of Drinking Water with TDS greater than 10,000 mg/L). 6. Page 28, Section K - DENR recommends EPA add a third sub-section to this section stating the permittee is prohibited from injecting waste fluids received from facilities other than from operations associated with the Dewey-Burdock Uranium In Situ Recovery Project. 7. Page 38, Section A- This section states EPA will not approve the plugging and abandonment (PA) of any Class V well until all Class III wellfields have been decommissioned by the Nuclear Regulatory Commission (NRC). DENR recommends EPA revise this section to include the authority to authorize the immediate PA of a Class V well in the event a well loses mechanical integrity or otherwise fails and threatens a USDW.

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			8. Page 44, Section D.11.i - Revise this section to include the following contact information for reporting oil and chemical releases to DENR. DENR Ground Water Quality Program, Spills Section, (605) 773-3296 or after hours at (605) 773-3231.
00555	Ex. 6 Personal Privacy (PP) Standing Rock Sioux Tribe	Standing Rock Sioux Tribe	The EPA acknowledges that there is downward flow from the Minnelusa formation into the Madison formation, but discounts the potential for migration upward. (EPA, Dewey-Burdock Class V Draft Area Permit Fact Sheet, p. 30). The Madison aquifer is the source for artesian springs in this area. Contamination of the Madison formation potentially impacts surface water through artesian springs. According to USGS, Aquifer interactions can occur at artesian springs, which discharge about one-half of average recharge to the Madison and Minnelusa aquifers in the Black Hills area. Various investigators have hypothesized that the Madison aquifer is the primary source for many artesian springs. (Naus et al, Geochemistry of the Madison and Minnelusa Aquifers in the Black Hills Area, South Dakota, Water Resources Investigations Report 01-4129, 2001, p. 2).
00565	Ex. 6 Personal Privacy (PP)	Thunder Valley Community Development Corporation	It is also critical for the EPA and the company to prove that the Minnelusa Aquifer could not be used for drinking water under any likely scenario - not just under current conditions. The Aquifer should have been tested to determine its drinking water status before a draft permit was issued. It is imperative that the company's actions be directly monitored (on-the-ground) if testing is being done to determine water quality in the Minnelusa Aquifer.
07445	Ex. 6 Personal Privacy (PP)	Individual	Subject: Dewey-Burdock Project Question Greetings -- We are getting conflicting information here in the Black Hills of South Dakota, and I'm hoping you can clarify things. The topic is deep disposal wells in Fall River and Custer Counties in the general area of the Dewey- Burdock uranium mining project. I am preparing expert testimony for the draft permit process and want to be operating from accurate information. Ex. 6 Personal Privacy (PP) who met with you in December, says that you indicated that there are as many as twelve deep disposal wells planned in the general area of the Dewey-Burdock project. The recently issued draft permit for the project says that there will be two to four DDWs. Are there other projects planned that we haven't heard about here yet? Or is there some other way to account for the 8 "missing" DDWs? Thanks much for your help in clarifying things.

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07460 (5/8 Rapid City hearing)	Ex. 6 Personal Privacy (PP)	Individual	My second concern has to do with the aquifer restoration plan. According to Azarga/Powertech, the company proposes to restore the contaminated aquifers by treating water pumped from production wells using reverse osmosis, membranes under high pressure, thus removing 90 percent of the dissolved constituents. Restored water will then be returned to injection wells, and the RO reject, the brine, will be disposed of in the Class V wells. The company has concluded that minimal benefit, if any, is derived from the groundwater sweep prior to deep well injection and suggests eliminating groundwater sweep as an unnecessary, ineffective, and consumptive step in the restoration process. According to the EPA, "High pressure reverse osmosis can only be employed after groundwater sweeping, because high concentrations of contaminates during the initial stages of the restoration process tend to disrupt and rupture the RO membranes."
07461 (5/9 Rapid City hearing)	Ex. 6 Personal Privacy (PP)	Individual	Ex. 6 Personal Privacy (PP) Good evening, Judge and EPA officials. My name is Gena Parkhurst -- G-E-N-A, P-A-R-K-H-U-R-S-T -- and I live in Rapid City. And I spoke yesterday, and I'd just like to clarify a comment that I made about the number of drinking water wells in the Minnelusa aquifer. After speaking with Ken Buhler -- B, as in boy, U-H-L-E-R -- of the South Dakota Department of Environment & Natural Resources, or DENR, he said that in November of 2014, the DENR started identifying which aquifer a well draws from on their permit forms, and this means that for many wells in use it is unknown which aquifer they draw from. Mr. Buhler said there are hundreds to thousands of domestic wells using water from the Minnelusa Aquifer. The exact number of wells is unknown at this time. However, Mr. Buhler said it is known that there are 196 appropriated water rights permits in the Minnelusa, which include municipal, commercial, industrial, and housing use. In addition, the USGS -- that's United States Geological Survey -- Water-Resources Investigations Report 01-4119 abstract starts with this statement: "The Madison and Minnelusa aquifers are two of the most important aquifers in the Black Hills area of South Dakota and Wyoming." The USGS Water-Resources Investigations report 01-4226 abstract begins with: "The Black Hills are an important recharge area for aquifers in the northern Great Plains. The surface-water hydrology of the area is highly influenced by interactions with the Madison and Minnelusa aquifers, including large springs and streamflow loss zones." In Valois Shea's presentation yesterday, she mentioned that a Class V injection well permit could not be used for an aquifer that is an underground source of drinking water, if I understood correctly.

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			The Minnelusa is being used as a such, so I think it is safe to say that it is considered an underground source of drinking water. The EPA's website defines an underground source of drinking water as the following: One, it supplies any public water system, which the Minnelusa does; two, the source of water contains a sufficient quantity of groundwater to supply a public water system, which it appears the Minnelusa does; three, it currently supplies drinking water for human consumption, which it sounds like the Minnelusa does; and four, it contains fewer than 10,000 milligrams of total dissolved solids, which according to USGS tables that I found online applies to most parts of the Minnelusa; and five, the source of water is not an exempted aquifer, which I believe the Minnelusa is not. So I just wanted to update you with those findings since yesterday. And I thank you for your time.
07461 (5/9 Rapid City hearing)	Ex. 6 Personal Privacy (PP)	Individual	The ability to purify the wastewater to Class V standards is not being considered. Simply putting the wastewater in a pond to air out the radon gas and then precipitating out the radium with barium chloride does not remove the other radioactive and toxic components. The toxic metals that have been mobilized are still there. And that includes vanadium, strontium, thallium, thorium, some radioactive forms of lead, and organified uranium that has been documented to build up in recycled wastewater and is not recoverable by ion exchange. And all are radioactive as well as toxic as heavy metals in biochemistry. This does not constitute the level of safety equal to stormwater or sewage effluent that a Class V well is limited to. If Powertech were able to clean this water to levels they boasted about in the NRC and ASLB hearing, so pure you could almost swim in it, then that water would be valuable for agriculture, irrigation, and farm use in this high, dry area of the country. It does not meet the qualifications for a Class V UIC, not for the concentration of toxic metals and radioactivity of such.
07461 (5/9 Rapid City hearing)	Ex. 6 Personal Privacy (PP)	Individual	And I want to pick up a little bit on what Ex. 6 Personal Privacy (PP) was referencing, which is the wide use of the Minnelusa aquifer for drinking water purposes. I think it's been well documented. I would ask the EPA, how many wells have you determined through surveys to be downgradient from this Dewey-Burdock site? I know you can't answer questions tonight, but I'd like to have that in the record.

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			Because of this drinking water use of the Minnelusa, I would ask that the EPA require the Class V injection well wastewater to meet drinking water standards, not hazardous waste standards as is currently in the draft permits. I did a little research and will read to you some of the numbers that I came up with. Right now, the hazardous waste concentration limit in the Class V permit, for instance, for arsenic is 5 milligrams per liter. If you follow the maximum contaminant -- the MCL for drinking water for arsenic, it would be .01. So that's a factor of 500 times more than what's in the MCL, the primary MCL. I could go down the list. Barium, you guys give them 100; the MCL is 2. So that's 50 times. Cadmium is 1, and then in your -- in your current limit, it's .005 MCL. So that's 200 times more than the drinking water criteria. Chromium, you gave them 5; it's .1 MCL. That's 50 times. Lead doesn't have a primary MCL, as you know, but it has -- there's a new lead rule, we've heard all about Flint. That concentration is .0015 milligrams per liter, and you guys gave them 5. So that's 3,333 times what's in the drinking water regs. Mercury, selenium, silver. I'm wondering why uranium is not in there. I know you have a uranium radioactive standard measured in microcuries per milliliter, or whatever the units are. But there is an MCL for uranium, and it's .03. So why isn't that in the standard -- in your current concentration limit for the Class V wells? So these are just some of my recommendations. And furthermore, I know that Powertech can meet these levels. They can treat these waters to these kinds of levels. In fact, the EPA's best available treatment, the BAT for Small System Compliance Technologies, SST -- SSCT, it can be found in your final radionuclides rule 40 C.F.R. 141.66, specifies that at least three technologies should be used in combination to achieve these low levels. So not only should Powertech be required to use reverse osmosis, they can also -- they would also couple this with a tertiary type of treatment, including activated carbon and ion exchange. All of these things are technologically possible, in which case we would be -- or they would be injecting drinking-water-quality water because people are drinking this water, and I think that's where this should end up. I'm an engineer. I'm practical. I'm trying to help you guys meet the criteria. I mean, we've heard tonight and yesterday all the heartfelt -- people's, you know, we're not going to contaminate the earth, and we don't want that to happen. But I know we have to have rules, and I'm trying to help you guys pick the right rules so that we can maintain what we need as far as drinking water quality in this area.

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			So thank you very much.
07642 (Hot Springs hearing)	Ex. 6 Personal Privacy (PP)	Individual	Present ion exchange technology will not remove organified heavy metals, including uranium. Disposal of this waste fluid should require permitting for a Class I well, not a Class V well